

## **PROBLEM SOLVING!**

### **The 4-STEP method:**

- 1) Understand the problem**
- 2) Plan your strategy**
- 3) Work!**
- 4) Check your answer (is it reasonable?)**

**Examples:**

1) A small office building is being remodeled. It takes 3 plumbers 7 days to install pipes. Each plumber works 8 hrs per day at \$35 per hour. How much will it cost for the plumbers to do the job?

$$\$35 \times 8 = \$280 \times 7 = \$1960 \times 3 = \$5880$$

2) It takes 2 carpenters 8 days to do the work at a house. Each carpenter earns \$37.50 per hour and works 7 hours per day. How much will it cost to hire the carpenters to do the house?

$$\$37.50 \times 7 = \boxed{262.5 \times 8 = 2100 \times 2 = \$4200}$$

1 day

Complete the following: p.61 #2 --- 8

$$\textcircled{\#6} \quad 3 \text{ feet} = 1 \text{ yard}$$

② \$12,870

$$214.50 \times 12 \times 5 =$$

③ \$139.88

④ \$158.70

⑤ \$11,984 =  $37.45 \times 8 \times 2 \times 4 \times 5$

⑥ \$2421.90

⑦ \$868.50

⑧ 52 wks.

$$= \frac{694.20}{13.35} = 52$$

## PATTERNS:

Examples:

1) 2, 4, 6, 8, 10, 12, 14 ...

$+2$   $+2$   $+2$   
 $\times 2$

(+2)

2) 1, 3, 6, 10, 15, 21, 28, 36 ...

$+2$   $+3$   $+4$   $+5$   $+6$   $+7$   $+8$   
 ~~$\times 3$   $\times 2$~~

3) 1, 3, 9, 27, 81, 243, 729, ...

$+2$   $+6$   $+16$   
 $\times 3$   $\times 3$   $\times 3$

Complete the following: p.70, #3 -- 6, 8, 14

③  $+6$       34, 40, 46

④  $\times 2$       32, 64, 128

⑤  $-3$       18, 15, 12

⑥  $\div 2$        $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$

⑧ 2, 3, 5, 9, 17, 33  
     $\vee$   $\vee$   $\vee$   $\vee$   $\vee$   $\vee$   $\vee$   
    +1 +2 +4 +8 +16 +32 +64  
     $\times 2 - 1$

⑩ 1, 1, 2, 3, 5, 8, 13, 21, 34, 55  
    ↓   ↓   ↓

Fibonacci Sequence

⑭ 512 mins.

### GUESS and CHECK

Example:

It costs \$0.50 to mail a postcard to Canada and \$0.60 to mail a letter to Canada. Andrew wrote 21 friends and spent \$12.00 for postage. How many letters and how many postcards did he write?

$$(0.50 \times P) + (0.60 \times L) = \$12$$

10	11
9	12
6 post.	15 let.



**Example:**

**The product of 3 consecutive whole numbers is 504. What are the 3 numbers?**

$$\underline{7} \times \underline{8} \times \underline{9} = 504$$

**Example:**

**Batteries come in packs of 3 or 4. If your class needs 30 batteries, how many different ways are there of buying exactly 30 batteries? What combination has the least number of packs bought?**

$$\begin{array}{r} 6 \times 4 \quad 2 \times 3 \\ \hline 10 \times 3 \\ \hline 3 \times 4 \quad 6 \times 3 \end{array}$$

Complete the following: p.73 #4, 10

<sup>N</sup> AND p. 69 #2, 5

$$\left(0.05 \times \frac{N}{20}\right) + \left(0.25 \times \frac{Q}{20}\right) = \begin{matrix} \$6 \\ \$6 \end{matrix} \quad 40 \text{ coins}$$

## WRITING AN EQUATION

Addition: sum, add, plus, more than, increased

Subtraction: difference, less than, minus, subtract, decrease

Multiplication: times, multiply, product, of

Division: quotient, divide, "half, third..."  
over

Example:

4 times a number plus 20 is 10 less than 57. What is the number?

$$\begin{aligned} 4 \times n + 20 &= 57 - 10 \\ 4n + 20 &= 47 \\ -20 \quad -20 & \\ \hline 4n &= 27 \\ \frac{4n}{4} &= \frac{27}{4} \\ n &= 6.75 \end{aligned}$$

Example:

In 40 hours at your regular rate of pay plus 5 hours of double time (twice your regular rate of pay) you earn \$425. What is your regular rate of pay?

$$(40 \times R) + (5 \times 2R) = 425$$

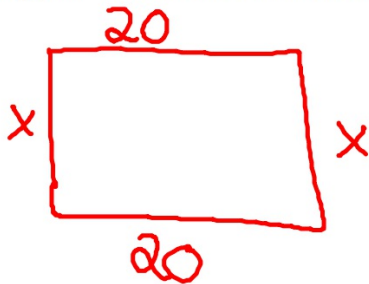
$$40R + 10R = 425$$

$$\frac{50R}{50} = \frac{425}{50}$$

$$R = 8.50$$

Example:

A rectangle with a perimeter of 48m is 20m long. What is the width of the rectangle? What is the area?



$$P = 48 = 20 + x + 20 + x$$

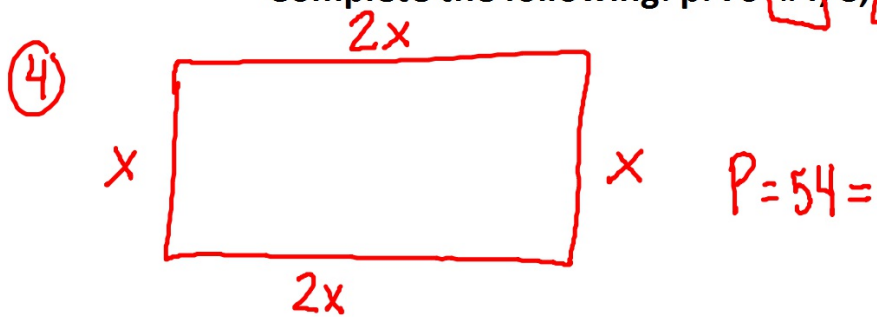
$$48 = 40 + 2x$$

$$\begin{array}{r} -40 \\ -40 \end{array}$$

$$8 = 2x$$

$$x = 4m$$

Complete the following: p. 79 #4, 8, 11



⑪  $\underline{\quad} + \underline{\quad} + \underline{\quad} = 27$

\* consecutive #'s

\* ODD #'s

### **MULTIPLE STEPS**

Example:

The band booster club sells cider and donuts at home football games. Last week they sold 318 cups of cider at \$0.50 per cup, and 12 dozen donuts at \$0.60 per donut. What were the total sales?

Example:

John earns \$7.50 per hour at work regularly. He earns twice as much per hour when he works overtime. He worked 30 regular hours and 9 overtime hours. How much did he earn this week?

Complete the following: p. 65 #5, 7, 10, 16

Extra Credit:

p. 85 #2, 3, 6